

4. A magnetoresistive-effect device according to claim 1, wherein said free magnetic layer comprises a plurality of soft magnetic thin films having different magnetic moments and nonmagnetic material layers, which are alternately laminated with one soft magnetic thin film separated from another by one nonmagnetic material layer, and said free magnetic layer is in a ferrimagnetic state in which the magnetization directions of two adjacent soft magnetic thin films, separated by the nonmagnetic material layer, are aligned antiparallel to each other.

5. A magnetoresistive-effect device according to claim 4, wherein the magnetic coupling junction between said multilayer film and said bias layer is fabricated of an interface with the end face of only one of the plurality of the soft magnetic thin films forming said free magnetic layer.

6. A magnetoresistive-effect device according to claim 1, wherein said pinned magnetic layer comprises a plurality of soft magnetic thin films having different magnetic moments and nonmagnetic material layers, which are alternately laminated with one soft magnetic thin film separated from another by one nonmagnetic material layer, and said pinned magnetic layer is in a ferrimagnetic state in which the magnetization directions of adjacent soft magnetic thin films, separated by the nonmagnetic material layer, are aligned antiparallel to each other.

7. A magnetoresistive-effect device according to claim 4, wherein said nonmagnetic material layer is made of a material selected from the group consisting of Ru, Rh, Ir, Cr, Re, Cu, and alloys thereof.

8. A magnetoresistive-effect device according to claim 1, wherein said antiferromagnetic layer is made of a PtMn alloy.

9. A magnetoresistive-effect device according to claim 1, wherein said antiferromagnetic layer is made of an X—Mn alloy where X is a material selected from the group consisting of Pd, Ir, Rh, Ru, and alloys thereof.

10. A magnetoresistive-effect device according to claim 1, wherein said antiferromagnetic material is made of a Pt—Mn—X' alloy where X' is a material selected from the group consisting of Pd, Ir, Rh, Ru, Au, Ag, and alloys thereof.

11. A magnetoresistive-effect device according to claim 1, wherein the position of at least one of the top edge and the bottom edge of the magnetic coupling junction between said multilayer film and said bias layer in the direction of the movement of a medium is at the same level as the position of at least one of the top surface and the bottom surface of said free magnetic layer in the direction of the movement of the medium.

12. A magnetoresistive-effect device according to claim 1, wherein a protective layer is deposited, as a top layer, on top of said multilayer film.

13. A magnetoresistive-effect device according to claim 12, wherein said protective layer is deposited where there is no junction between said multilayer film and said electrode layer.

14. A magnetoresistive-effect device according to claim 1, wherein the width dimension of a portion of each electrode layer extending over said multilayer film is within a range from 0 μm to 0.08 μm .

15. A magnetoresistive-effect device according to claim 14, wherein the width dimension of the portion of each electrode layer extending over said multilayer film is equal to or larger than 0.05 μm .

16. A magnetoresistive-effect device according to claim 1, wherein an insulator layer is deposited between said electrode layers, which are deposited above and on both sides of said multilayer film, and the end face of said insulator layer is in direct contact with each of said electrode layers or is separated from each of said electrode layers by a layer.

17. A magnetoresistive-effect device according to claim 1, wherein said multilayer film comprises a central sensitive region which provides an excellent reproduction gain, exhibiting a substantial magnetoresistive effect and insensitive regions which are formed on both sides of said sensitive region, and provide a poor reproduction gain, exhibiting no substantial magnetoresistive effect, and wherein said electrode layers deposited on both sides of said multilayer film extend over the insensitive regions of said multilayer film.

18. A magnetoresistive-effect device according to claim 17, wherein said sensitive region of said multilayer film is defined as a region which results in an output equal to or greater than 50% of a maximum reproduction output while said insensitive regions of said multilayer film are defined as regions, formed on both sides of said sensitive region, which result in an output smaller than 50% of the maximum reproduction output, when the magnetoresistive-effect device having the electrode layers deposited on both sides only of said multilayer film scans a micro track, having a signal recorded thereon, in the direction of a track width.

19. A magnetoresistive-effect device according to claim 17, wherein the width dimension of said sensitive region of said multilayer film is equal to an optical track width.

20. A magnetoresistive-effect device according to claim 17, wherein the angle made between the surface of said protective layer or the surface of said multilayer film with said protective layer removed therefrom and the end face of said electrode layer extending over said insensitive region of said multilayer film is within a range of 20 degrees to 60 degrees.

21. A magnetoresistive-effect device according to claim 17, wherein the angle made between the surface of said multilayer film and the end face of said electrode layer extending over said insensitive region of said multilayer film is within a range of 25 degrees to 45 degrees.

22. A magnetoresistive-effect device according to claim 17, wherein a protective layer is deposited, as a top layer, on top of said multilayer film.

23. A magnetoresistive-effect device according to claim 22, wherein an insulator layer is deposited between said electrode layers, which are deposited above and on both sides of said multilayer film, and the end face of said insulator layer is in direct contact with said electrode layer or is separated from said electrode layer by a layer.

24. A magnetoresistive-effect device according to claim 22, wherein the angle made between the surface of said protective layer or the surface of said multilayer film with said protective layer removed therefrom and the end face of said electrode layer extending over said insensitive region of said multilayer film is within a range of 20 degrees to 60 degrees.

25. A magnetoresistive-effect device according to claim 22, wherein the angle made between the surface of said protective layer or the surface of said multilayer film with said protective layer removed therefrom and the end face of said electrode layer extending over said insensitive region of said multilayer film is within a range of 25 degrees to 45 degrees.